

Department:

Electrical Technology

Course Description:

An introductory course on residential wiring methods that includes practical applications and hands-on experience in implementing National Electrical Code (NEC) requirements.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Identify and install required branch circuits per NEC.
2. Install and calculate residential services per NEC.
3. Identify and install various types of luminaries.
4. Describe branch circuit requirements for appliances per NEC.
5. Identify and install various types of switches and receptacles per NEC.
6. Identify the NEC requirements for grounding and bonding.
7. Identify and install over current/short circuit and ground fault protection.
8. Install service entrance.
9. Calculate box fill and placement of boxes.
10. Calculate circuit loads and correct wire size.

Course Content:

- A. Electrical Installations
- B. Calculating required number of circuits
- C. Conductor sizing
- D. Conductor Identification
- E. Overcurrent devices
 1. Fuses, breakers GFI, AFI
- F. Lighting
 1. Branch circuits for the whole house
- G. Special purpose outlets
 1. Range, dryer, AC, Water heater, etc.
- H. Gas and oil central heating systems
- I. Low voltage systems
- J. Special systems
 1. Heat , smoke, carbon dioxide and security
- K. Service entrance equipment
- L. Service entrance calculations
- M. swimming Pools
- N. Home automation
- O. Standby power systems

Learning Assessments:

The student will take a test after each chapter and at the end of the course.

TESTS: Tests will cover one to two chapters. Test questions may be multiple choice, essay, or fill in the blank. You will be allowed to make up a test that was missed or failed, with the condition that it needs to be done in the week it was missed. Failed tests that are retaken will be averaged with the first test for your final score.

QUIZZES: The instructor may give unannounced and announced quizzes during the semester. These quizzes will be over either subject matter assigned or subject matter previously discussed. Students may not make up quizzes.

Instructional Materials:

Textbook: Modern Residential Wiring, Harvey N. Holzman, 12th Ed., Goodheart-Willcox, 2020. ISBN: 978-1-63563-880-6

Modern Residential Wiring, Harvey N. Holzman, 12th Ed., Lab Manual, Goodheart-Willcox, 2020. ISBN: 978-1-63563-881-3

House Wiring Simplified, Floyd M. Mix, 15th Ed., Lab Manual, Goodheart-Willcox, 2020. ISBN: 978-0870064906

NFPA 70 National Electric Code 2020, Delmar Cengage Learning, ISBN: 978-1-45592-298-7

NEC Code Book Tabs 2020, Mike Holt, ISBN: 978-1-950431-31-1

NEC Keyword Index 2020, Tom & Tim Henry, ISBN: 978-1-73346-214-3

Ugly's Electrical References, Charles R. Miller, Jones & Bartlett LLC., 2020, ISBN: 978-1-28419-453-1

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" on our [Disability Services website](#).

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty

member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).